

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference A 12300-PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP99/06656	International filing date (day/month/year) 09 September 1999 (09.09.99)	Priority date (day/month/year) 10 September 1998 (10.09.98)
International Patent Classification (IPC) or national classification and IPC G01B 11/16		
Applicant RICKLEFS, Ubbo		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 4 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☒ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability: citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 03 March 2000 (03.03.00)	Date of completion of this report 04 September 2000 (04.09.2000)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

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I. Basis of the report

1. This report has been drawn on the basis of *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

- ☐ the international application as originally filed.
- ☒ the description. pages 1-10, as originally filed.
 pages _____, filed with the demand,
 pages _____, filed with the letter of _____
 pages _____, filed with the letter of _____
- ☒ the claims, Nos. _____, as originally filed,
 Nos. _____, as amended under Article 19.
 Nos. _____, filed with the demand.
 Nos. 1-7, filed with the letter of 10 August 2000 (10.08.2000)
 Nos. _____, filed with the letter of _____
- ☒ the drawings. sheets/fig 1/4-4/4, as originally filed.
 sheets/fig _____, filed with the demand.
 sheets/fig _____, filed with the letter of _____
 sheets/fig _____, filed with the letter of _____

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings. sheets/fig _____

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

4. Additional observations, if necessary:

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IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
- ☐ paid additional fees.
- ☐ paid additional fees under protest.
- ☐ neither restricted nor paid additional fees.

2. ☒ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

- ☐ complied with.
- ☒ not complied with for the following reasons:

See supplemental Box.

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- ☒ all parts.
- ☐ the parts relating to claims Nos. _____

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Box IV.3

1. The following document is referred to:
D1: DE-A-196 39 213 (W. STEINCHEN) 26 March 1998
(1998-03-26).
2. The present application does not meet the requirements of PCT Rule 13.1, because Claims 1 and 5 are not linked by a shared inventive concept. The reasons for that finding are as follows:
The features defined in the preambles to Claims 1 and 5, respectively, have already been disclosed in combination in D1, whereas the features defined in the characterising part of each of those claims represent a contribution over the prior art. However, the features defined in the characterising part of Claims 1 and 5, respectively, do not solve any technical problem that is common to both claims, and neither do they represent the same or corresponding special technical features (PCT Rule 13.2). This is explained in greater detail below.

Claim 1:

The technical problem addressed by Claim 1 is that of devising an alternative for the expensive synchronisation of stroboscopic illumination with the excitation of an object using an opto-acoustic modulator. This problem is solved by the features defined in the characterising part of the claim.

Claim 5:

The technical problem addressed by Claim 5 is that of devising an alternative method for measuring a

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Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: BOX IV.3

relative excitation at various points on an oscillating surface.

This problem is solved by the features defined in the characterising part of the claim; none of these features is either the identical to or corresponds to the features defined in Claim 1.

Consequently, independent Claims 1 and 5 are considered to lack unity of invention and they do not meet the requirements of PCT Rule 13.

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V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-7	YES
	Claims		NO
Inventive step (IS)	Claims	1-7	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-7	YES
	Claims		NO

2. Citations and explanations

Closest prior art

D1 (DE-A-196 39 213) is considered to represent the closest prior art to the present application. It concerns a method for shearographically determining the deformation of surfaces, whereby the surface is excited with a known frequency, and a movement of the surface under examination can be determined from holographic images or speckle pattern interferometry.

Novelty

For the reasons stated below, independent Claims 1 and 5 satisfy the requirement of novelty (PCT Article 33(1) and (2)).

Claim 1: Neither D1 nor any other available document discloses a method for motionless examination of a surface whereby the object, which is excited into oscillation, is permanently illuminated and recorded by an electronic camera in very short synchronised exposures, and in order to obtain a high-contrast image, several individual exposures are combined in the camera before a composite image of the surface movement is output in a single selection cycle.

Claim 5: Neither D1 nor any other available document discloses a method for motionless examination of a surface

whereby the object is excited with a constant frequency but with at least two different excitation amplitudes, and for each excitation amplitude an integrated image is recorded during an oscillation period or during a multiple of a period. From the various images and by comparing them, a change in the amplitude of the movement of the object surface can be determined as a function of the excitation amplitudes.

Dependent Claims 2-4, 6 and 7 define further embodiments of the subject matter defined in the independent claims and are therefore likewise considered to be novel within the meaning of PCT Article 33(1) and (2).

Inventive Step

The technical problems solved by the features defined in the characterising part of Claims 1 and 5, respectively, are mentioned above in Box IV. The proposed solutions are not known from any other document and are not obvious in the light of general expert knowledge in this technical field.

Consequently, the subject matter of independent Claims 1 and 5, and hence also the subject matter of dependent Claims 2-4, 6 and 7, is considered to involve an inventive step within the meaning of PCT Article 33(1) and (3).

Industrial Applicability

The defined subject matter is industrially applicable in many fields in which motionless examination of a surface is carried out. Claims 1-7 therefore satisfy the requirements of PCT Article 33(1) and (4).

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VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

1. Contrary to the requirements of PCT Rule 5.1(a)(ii), neither D1 nor the relevant prior art disclosed in that document has been mentioned in the description.
2. Contrary to PCT Rule 5.1(a)(iii), the description is not consistent with the claims.